

**I CLAIM:**

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1. A device comprising a housing sized for carrying in a user's pocket and including:  
a transducer to receive ambient audio and to output electrical signals corresponding  
thereto;

5 a watermark detector coupled to the transducer for producing payload information;  
a memory storing user identification information; and  
an interface that receives at least some of both the payload information and the user  
identification information for transmission to a relay station.

10 2. The device of claim 1 in which the interface is a wireless interface.

3. The device of claim 1 including an alphanumeric display.

4. The device of claim 1 including a keypad.

15 6. A method comprising:  
receiving audio at a device;  
discerning from the audio a plural-bit audio ID;  
obtaining a user ID from a memory in the device;

20 transmitting at least portions of both the audio ID and the user ID to a location remote  
from said device.

7. The method of claim 6 in which the audio ID comprises a Digital Object Identifier.

25 8. The method of claim 6 that further comprises receiving the audio by a  
microphone.

9. The method of claim 8 that further comprises discerning at least two IDs from the  
audio, one being said audio ID, another being an ID corresponding to an environment in

30 which the device is located.

10. In a method of steganographically encoding audio with a plural-bit binary watermark payload, an improvement wherein the watermark payload comprises a Digital Object Identifier.

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11. A method comprising generating a noise-like signal having a plural-bit location identifier encoded therein, and airing said signal through at least one loudspeaker in an environment, said aired signal being generally indiscernible by human listeners present in said environment.

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**WE CLAIM**

## 1. A method comprising:

encoding digital source material to steganographically convey plural-bit auxiliary data;

5 passing the encoded source material to a destination through at least one intervening computer;

at said intervening computer, detecting encoded source material transmitted thereby; and

crediting a payment in response to said detection of the encoded source material, in

accordance with the plural-bit auxiliary data steganographically conveyed by the encoded source  
10 material.

2. The method of claim 1 which includes decoding plural-bit auxiliary data only from source material that has first been tested to indicate the likely presence of such auxiliary data therein.

3. The method of claim 2 which includes testing objects by reference to an encoding attribute that is supplemental to said encoded plural-bit auxiliary data.

4. The method of claim 3 in which said attribute is the presence of a characteristic signature signal conveyed by said object.

5. The method of claim 4 in which the signature signal is a repetitive noise burst signal.

6. The method of claim 1 in which said transmitting includes distributing through a network of  
25 interconnected computers.

7. The method of claim 1

reporting said detection to a location remote from detection over same network  
crediting royalties based on detection

8. A method comprising:
  - encoding audio source material to steganographically convey plural-bit auxiliary data;
  - presenting the audio source material to a consumer;
  - decoding the audio source material as it is being presented to the consumer, to decode the auxiliary data therefrom; and
  - storing data indicating the audio source material(s) presented to the consumer.
9. The method of claim 8 that includes generating a report based on the stored data, indicating the audio source material(s) presented to the consumer.

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10. The method of claim 8 which includes detecting the presented audio source material with a microphone, and decoding the auxiliary data from a microphone output signal.
11. A method comprising:
  - encoding an object to steganographically convey plural-bit auxiliary data;
  - distributing the object beyond the control of a proprietor thereof;
  - thereafter, decoding the plural-bit auxiliary data from the object;
  - consulting a registry to determine the proprietor of the object, by reference to said decoded plural-bit auxiliary data; and
  - making a payment to said proprietor.
12. The method of claim 11 that includes making said payment through the registry.

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13. The method of claim 11 in which the object is a work of authorship, and the encoding adds a generally imperceptible level of noise to the object as it is perceived by a consumer thereof.
14. The method of claim 11 in which the registry comprises a database accessible through the internet.

15. A method of encoding a digital object, comprising:

encoding the object with a first information signal, said first information signal having relatively small information content, but permitting rapid decoding; and

encoding the object with a second information signal, said second information signal

5 conveying having relatively high information content, requiring relatively more time to decode.

16. The method of claim 15 in which the first information signal is a signal indicating to decoding equipment that the object is not to be copied, and the second information signal is a signal conveying information relating to ownership of the object.

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17. The method of claim 15 in which:

the digital object is a digital representation of music; and

the first information signal is a broadband, repetitive signal that is conveyed at a low level within said music.

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18. The method of claim 15 in which the first and second signals are independent of each other.

19. The method of claim 15 in which the first and second signals are aspects of a combined signal.

20. A method of processing an object that has been steganographically encoded with first and second information signals, the first information signal having relatively small information content, the second information signal having relatively larger information content, the method comprising:

25 decoding from the object the first information signal, the relatively small information content of the first information signal permitting relatively rapid decoding;

disabling an operation of an apparatus in accordance with the decoded first information signal; and

30 optionally, decoding from the object the second information signal, the relatively larger information content of the second information signal requiring relatively more time to decode, said second information signal conveying information relating to ownership of the object.

21. A method of encoding audio with a marker signal indicating a restriction on permitted copying, wherein the marker signal is characterized by being in-band, broadband, and repetitive.

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22. A method comprising:

watermarking plural-bit binary payload data in an object;

reading the payload data from the object using a device; and

using the payload data read by the device in connection with a commercial transaction

10 involving music related to said object.

23. The method of claim 11 in which the object is a poster having artwork thereon.

24. The method of claim 11 in which the object is a storage medium having a music video recorded thereon.

25. The method of claim 11 in which the device is a handheld, battery powered device.

26. A method of altering music data to steganographically insert plural bits of watermark data therein, characterized by inserting a first group of said bits for benefit of an end-user of the music data, inserting a second group of bits different than the first for benefit of an artist whose music is encoded by said music data, and inserting a third group of bits different than the first two for benefit of a distributor of the music data.

25 27. The method of claim 26 in which the first group of bits represents an internet address of a web site that may be accessed by end-users of the music data.

28. The method of claim 26 in which the second group of bits includes bits representing a unique identifier for the music data, permitting machine identification of the data and royalty credit  
30 to the artist.

29. The method of claim 26 in which the third group of bits represents usage restrictions to which audio appliances are responsive, thereby driving distribution of additional copies of the music data.